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Translation

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference <b>P61.12PCT287</b>		FOR FURTHER ACTION	See Form PCT/IPEA/416
International application No. <b>PCT/EP2004/003916</b>	International filing date (day/month/year) <b>14.04.2004</b>	Priority date (day/month/year) <b>19.04.2003</b>	
International Patent Classification (IPC) or national classification and IPC			
Applicant <b>EBM-PAPST ST. GEORGEN GMBH &amp; CO. KG</b>			
<p>1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of <u>5</u> sheets, including this cover sheet.</p> <p>3. This report is also accompanied by ANNEXES, comprising:</p> <p>a. <input checked="" type="checkbox"/> (sent to the applicant and to the International Bureau) a total of <u>6</u> sheets, as follows:</p> <p><input checked="" type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).</p> <p><input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.</p> <p>b. <input type="checkbox"/> (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) _____, containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).</p>			
<p>4. This report contains indications relating to the following items:</p> <p><input checked="" type="checkbox"/> Box No. I Basis of the report</p> <p><input type="checkbox"/> Box No. II Priority</p> <p><input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</p> <p><input type="checkbox"/> Box No. IV Lack of unity of invention</p> <p><input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p><input type="checkbox"/> Box No. VI Certain documents cited</p> <p><input type="checkbox"/> Box No. VII Certain defects in the international application</p> <p><input type="checkbox"/> Box No. VIII Certain observations on the international application</p>			
Date of submission of the demand		Date of completion of this report	
Name and mailing address of the IPEA/EP		Authorized officer	
Facsimile No.		Telephone No.	

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/EP2004/003916

Box No. I Basis of the report

1. With regard to the language, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ This report is based on translations from the original language into the following language \_\_\_\_\_ which is the language of a translation furnished for the purposes of:

- ☐ international search (Rule 12.3 and 23.1(b))  
☐ publication of the international application (Rule 12.4)  
☐ international preliminary examination (Rule 55.2 and/or 55.3)

2. With regard to the elements of the international application, this report is based on (*replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report*):

☐ the international application as originally filed/furnished

☒ the description:

pages 1-9 as originally filed/furnished

pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_

pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_

☒ the claims:

nos. \_\_\_\_\_ as originally filed/furnished

nos.\* \_\_\_\_\_ as amended (together with any statement) under Article 19

nos.\* 2-15 received by this Authority on 29.09.2004 with letter

nos.\* 1 received by this Authority on 30.03.2005 with letter

☒ the drawings:

sheets 1/12-12/12 as originally filed/furnished

sheets\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_

sheets\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_

☐ a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.

3. ☐ The amendments have resulted in the cancellation of:

☐ the description, pages \_\_\_\_\_

☐ the claims, nos. \_\_\_\_\_

☐ the drawings, sheets/figs \_\_\_\_\_

☐ the sequence listing (*specify*): \_\_\_\_\_

☐ any table(s) related to sequence listing (*specify*): \_\_\_\_\_

4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

☐ the description, pages \_\_\_\_\_

☐ the claims, nos. \_\_\_\_\_

☐ the drawings, sheets/figs \_\_\_\_\_

☐ the sequence listing (*specify*): \_\_\_\_\_

☐ any table(s) related to sequence listing (*specify*): \_\_\_\_\_

\* If item 4 applies, some or all of those sheets may be marked "superseded."

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/EP2004/003916

Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement		
1. Statement			
Novelty (N)	Claims	1-15	YES
	Claims		NO
Inventive step (IS)	Claims	1-15	YES
	Claims		NO
Industrial applicability (IA)	Claims	1-15	YES
	Claims		NO
2. Citations and explanations (Rule 70.7)			
1 This refers to the following documents:			
D1: US-A-5 769 607 (SAVAGE JOHN R ET AL) 23 June 1998 (1998-06-23)			
D2: DE 30 17 226 A (PAPST MOTOREN KG) 20 November 1980 (1980-11-20)			
D3: US-A-5 297 931 (YAPP MARTIN G ET AL) 29 March 1994 (1994-03-29)			
D4: DE 41 27 134 A (PAPST MOTOREN GMBH & CO KG) 18 February 1993 (1993-02-18).			
2.1 Documents D1 and D3 are considered the prior art closest to the subject matter of claim 1. They disclose a device fan having an outer housing through whose inner side an air-conveying duct passes, in which a ventilating wheel is disposed which can be rotated about a central axis and has a central hub having an outside diameter, to which fan blades are attached whose radially outside edges are each at a distance from the adjoining inner side of the outer housing and which each have a shape resembling that of an aircraft wing, wherein the leading edges of the blades are			

Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
	<p>concave and crescent-shaped in such a way that, in relation to the direction of rotation, the radially outside end of a crescent is situated further to the front in the direction of circumference than the hub-side end of the crescent, and, in addition, the blades are wound and have a convex trailing edge.</p> <p>2.2 The subject matter of claim 1 therefore differs from the fans known from documents D1 and D3 in that a flow element is provided along the radial outer side of the fan blades and adjacent to the inner side of the outer housing, the shape of the flow elements being analogous to that of the corresponding fan blades, which serves as an obstacle to a compensating flow moving around this wound, radial outer edge from the pressure side to the suction side, so as to reduce the noise produced when the device fan is running.</p> <p>2.3 Consequently, the subject matter of claim 1 is novel (PCT Article 33(2)).</p> <p>2.4 The problem to be solved by the present invention is therefore understood to lie in the fact that at present the design of the device fan is too complicated.</p> <p>2.5 The solution to this problem, as proposed in claim 1 of the present application, involves an inventive step (PCT Article 33(3)), for the following reasons:</p>

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

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Box No. V

Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability;  
citations and explanations supporting such statement

- 2.6 Although the solution according to which a flow element is used whose shape is analogous to that of the corresponding fan blade and which serves as an obstacle to a compensating flow moving around this wound, radial outer edge from the pressure side to the suction side, is disclosed in document D2, it would not be obvious to a person skilled in the art to combine documents D1 and D2 (or D3 and D2). The problem solved by the features in document D2 is a reduction in noise. This problem was already solved in document D1 and D3 by the design of the housing and the blade cover band.
3. Claims 2-15 are dependent on claim 1 and therefore likewise meet the PCT requirements for novelty and inventive step.